

WHAT IS CLAIMED IS:

1. A computer readable medium containing computer executable instructions to perform a method for assisting a computer programmer in real time to complete a programming language statement in a computer program, said method comprising:
- enabling a programming language editor having a character position cursor and a randomly positionable pointer;
- partially compiling available ones of a plurality of programming language statements in said computer program;
- defining a finite set of programming language statement information that is relevant to at least one segment of a present programming language statement from among said plurality of programming language statements that is proximate to said character position cursor; and
- generating a passive assist window that contains said finite set of programming language statement information in a location proximate to said character position cursor.
2. A method according to claim 1 including:
- automatically attempting said steps of claim 1 for each character received by said programming language editor.
3. A method according to claim 2 including:
- attempting said steps of claim 1 on a randomly selected one of said plurality of programming language statements in response to a real time request by said computer programmer.
4. A method according to claim 1 including:
- attempting said steps of claim 1 on a randomly selected one of said plurality of programming language statements in response to a real time request by said computer programmer at a time when at least one automatic assist window feature is disabled.

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PCT/EP/2018/052240
5. A method according to claim 1 including:
generating a simultaneous plurality of passive assist windows that each contain a finite set of programming language statement information in a location proximate to said character position cursor, said simultaneous plurality of 5 passive assist windows being selected from at least one of a group comprised of: a selection menu assist window and an informational display assist window.
6. A method according to claim 1 wherein said step of defining includes:
10 generating said finite list as a selectable list of menu items that can each validly complete said at least one segment of said present programming language statement that is proximate to said character position cursor.
7. A method according to claim 1 wherein said step of generating 15 includes:
creating a selection menu assist window comprised of said list of menu items; and
enabling window control features for said selection menu assist window.
- 20 8. A method according to claim 6 including:
replacing said at least one segment of said present programming language statement with one of said list of menu items in response to an input command by said computer programmer.
- 25 9. A method according to claim 1 wherein said step of defining includes:
generating an argument list of each argument in said present programming language statement; and
identifying an argument type for each argument in said argument list 30 selected from at least one of a group comprised of: a mandatory argument and an optional argument.
10. A method according to claim 9 wherein said step of generating

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includes:

reverse parsing said present programming language statement into a plurality of tokens that each represent an individual component selected from at least one of a group comprised of: an object entity segment and a delimiter, in 5 response to a real time request by said computer programmer;

distinguishing said plurality of tokens between a procedure call token and any argument token in said argument list; and

binding said argument list.

10 11. A method according to claim 1 wherein said step of generating includes:

generating an informational display assist window based on an argument list;

15 distinguishing a mandatory argument from an optional argument within said argument list; and

highlighting a present argument within said argument list that corresponds to a present location of said character position cursor within said present programming language statement.

20 12. A system for passively assisting a user in real time to complete a programming language statement, said system comprising:

a programming language editor having a character position cursor and a randomly positionable pointer;

means for partially compiling available ones of a plurality of programming 25 language statements in said computer program; and

means for generating an assist window that contains a finite set of programming language statement information in a location proximate to said character position cursor, said assist window being selected from at least one of a group comprised of: a selection menu assist window and an informational 30 display assist window.

13. A system according to claim 12 wherein said means for generating includes:

means for identifying a desired menu item from said selection menu assist window; and

means for replacing a segment of a present programming language statement at a present location of said character position cursor with said

5 desired menu item in response to said means for identifying.

14. A system according to claim 12 including:

means for displaying information in an informational display assist window, said information being related to at least one segment of a present

10 programming language statement that is proximate a present location of said character position cursor and selected from at least one of a group comprised of: a symbol definition, a defined constant, a procedure call map, and an enumerated list.

15 15. A system according to claim 12 including:

means for automatically enabling said means of claim 12 for each character received by said programming language editor.

16. A system according to claim 12 including:

20 means for enabling said means of claim 1 on a randomly selected one of said plurality of programming language statements in response to a real time request by said user and independent of any automatic assist feature.

17. A real time method for assisting a user to complete a programming
25 language statement in a computer program, said real time method comprising:

enabling a programming language editor having a character position cursor;

continuously resolving symbolic portions of available ones of a plurality of programming language statements into a partial program compilation;

30 identifying a present programming language statement and at least one segment of said present programming language statement based on a location of said character position cursor;

determining a finite set of information related to said present

programming language statement and said at least one segment of said present programming language statement based on said partial program compilation; and

generating an assist window of said finite set of information.

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18. A method according to claim 17 wherein said step of identifying includes:

determining an identity of input to said programming language editor by said user;

10 enabling a reverse parse evaluation of said present programming language statement into identifiable tokens for each of said at least one segment therein in response to said input being an on-demand request by said user;

enabling execution of a editing task in response to said input being a programming language editor command;

15 enabling a first type of commit of an identified menu item from a selection menu assist window in response to said input being a commit key, wherein said step of enabling a first type of commit includes:

identifying said commit key as a non-delimiter type commit key;
and

20 discarding said commit key;

enabling a second type of commit of an identified menu item from a selection menu assist window in response to said input being a commit key, wherein said second type of commit includes:

identifying said commit key as a delimiter type commit key; and

25 inserting said commit key after said identified menu item in said present programming language statement; and

adding to said present programming language statement at a location of said character position cursor in response to said input being a non-commit key type input character.

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19. A method according to claim 17 wherein said step of generating includes:

displaying a selection menu assist window where said present

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programming language statement is identified as an operator embedded
programming language statement; and

displaying an informational display assist window where said present
programming language statement is identified as a non-operator embedded
5 programming language statement.

20. A method according to claim 19 wherein said non-operator
embedded programming language statement is a procedure call.

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